

CLAIMS

1. A numerical value control system that controls a machine tool, by calculating a move command from a work program or a work data for a numerical value control unit, and directly inputting the move command to a servo control section within the numerical value control unit from the outside of the numerical value control unit, wherein

the numerical value control system comprises at the outside of the numerical value control unit: a analyzing unit which analyzes a work program or a work data; and an interpolating unit which carries out interpolation for each axis in a position control period of the servo control section based on output information from the analyzing unit and cut conditions, whereby the numerical value control system controls a machine tool by directly inputting a move command of a binary format prepared in advance by the interpolating unit, to the servo control section within the numerical value control unit.

2. The numerical value control system according to claim 1, wherein the numerical value control system comprises at the outside of the numerical value control unit: a speed information generating unit which generates speed information per unit time in advance by carrying out acceleration/deceleration processing to interpolation data

output from the interpolating unit, whereby the numerical value control system controls a machine tool by directly inputting a move command of a binary format including the speed information prepared in advance by the speed information generating unit, to the servo control section within the numerical value control unit.

3. The numerical value control system according to claim 2, wherein the numerical value control system comprises at the outside of the numerical value control unit: a feedforwarding unit which absorbs a delay of a servo system in data output from the speed information generating unit, whereby the numerical value control system controls a machine tool by directly inputting a move command of a binary format prepared in advance by the feedforwarding unit, to the servo control section within the numerical value control unit.

4. The numerical value control system according to claim 1, wherein the numerical value control system comprises at the outside of the numerical value control unit: a database unit having a database memory unit for storing a move command in a binary format, cut conditions attached to the binary data, and a work program or a work data for controlling a numerical value that becomes the basis of the binary data, by preparing these data in a database; and database managing

unit which manages the database memory unit, in such a way that the database unit can carry out data communications with the numerical value control unit.

- 5 5. A numerical value control processing method that controls a machine tool, by calculating a move command from a work program or a work data for a numerical value control unit, and directly inputting the move command to a servo control section within the numerical value control unit from
10 the outside of the numerical value control unit, the numerical value control processing method comprising the steps of:

analyzing a work program or a work data, and carrying out interpolation for each axis in a position control period
15 of the servo control section based on analysis information and cut conditions, prior to a processing, at the outside of the numerical value control unit; and controlling a machine tool by directly inputting a move command of a binary format prepared in advance by the interpolation calculation,
20 to the servo control section within the numerical value control unit.

6. The numerical value control processing method according to claim 5, comprising the steps of: generating
25 speed information per unit time by carrying out

acceleration/deceleration processing to interpolation data prior to a processing, and preparing a move command of a binary format including the speed information prior to a processing, at the outside of the numerical value control
5 unit; and controlling a machine tool by directly inputting the speed information and the move command to the servo control section within the numerical value control unit.

7. The numerical value control processing method
10 according to claim 5, comprising the steps of: carrying out a feed-forward compensation calculation for absorbing a delay of a servo system in a move command, prior to a processing, at the outside of the numerical value control unit; and
controlling a machine tool by directly inputting the
15 feed-forward-compensated move command of a binary format, to the servo control section within the numerical value control unit.

8. The numerical value control processing method
20 according to claim 5, comprising the steps of: storing a database of a move command in a binary format, cut conditions attached to the binary data, and an NC unit work program or a work data that becomes the basis of the binary data, at the outside of the numerical value control unit; and
25 controlling a machine tool by directly inputting the data

of the database, to the servo control section within the numerical value control unit.